Inside Wallops

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High-Gain Antenna Speeds Up Data Delivery for Balloons

By Lori Keesey, Goddard Tech Trends

Researchers who use balloons to carry their experiments to the uppermost reaches of the Earth's atmosphere now have the means to retrieve their data at greatly increased rates in near real-time—in sharp contrast to what was available to them before.

The high-gain antenna has flown on two CREAM payloads launched from McMurdo Station in Antarctica. The most recent mission ended January 15.

The Wallops Flight Facility has developed a new high-grain antenna that uses the Agency's Tracking and Data Relay Satellite (TDRS) system to transmit scientific and housekeeping data in real-time at 100 kilobits per second. This represents a more than 10-fold increase over data rates previously achieved using omni-directional antennas.

The 18-inch flat plate array antenna already has flown on the two Cosmic Ray Energetics and Mass (CREAM) payloads launched from McMurdo Station in Antarctica. The experiment, a joint effort involving several U.S. and foreign universities, measures the spectra of cosmic-ray nuclei from helium to iron. The most recent mission ended January 15 after the balloon spend 28 days aloft.

"The researchers got their data immediately and we were able to monitor our systems continuously and respond immediately," said Wallops Project Manager Linda Thompson, referring to the speed by which researchers received their data during CREAM 2. At 100 kilobits per second, she likened the situation to what people experience when they migrate from dial-up to broadband.

During the CREAM launch, data was transmitted to TDRS, which then sent it to White Sands, N.M. From there, it went to the Operations Control Center in Palestine, Texas, the Engineering Support Center at Wallops Island, Va., and on to the Science Operations Center at the University of Maryland in College Park.

The antenna has a bright future, Thompson said. "It definitely could be used on aircraft." Future enhancements will increase its data rate to upwards of 1200 kilobits per second.

Wallops Shorts.....

On the Road

Mike Cropper, NASA Mechanical Systems Branch, participated in a Career Day Event for Arcadia, Nandua, and Chincoteague High Schools and Tangier Combined School students at Arcadia High School on March 30.

Good Science Return

"I am pleased to report the unqualified success of Terrier-Black Brant 36.193 US launched from White Sands Missile Range, N.M., on February 8, 2006. All comprehensive success criteria were met.

The performance of the vehicle, ACS, TM and recovery systems was essentially perfect in terms of the end quality of the science. All Science exposures were obtained on target.

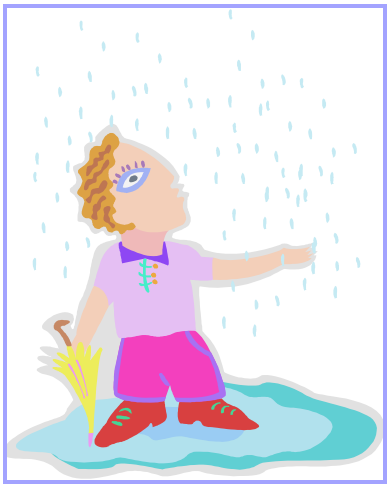
I commend the NSROC team for their dedication and professionalism. There are many students on our instrument team. I greatly appreciate the opportunity afforded these young scientists and engineers to interact with seasoned professionals in the context of a highly successful mission."

-Dr. Charles Kankelborg
Montana State University

Bring On The Rain!

By Ted Wilz, Senior Meteorologist

After the driest February on record, March continued the drought-like conditions across Delmarva, as Wallops experienced the driest March ever. We had measurable precipitation fall on only five days during the month, totaling .28 inches, topping the previous driest March in 1986 when we saw .30 inches of precipitation. March is usually one of the wettest months of the year, averaging 3.84 inches of rain. We were well below the annual average, much to the chagrin of the Delmarva agricultural industry.



While March was a very dry month, it was a rather average month, temperature-wise. The warmest temperature of the month occurred on March 13, when we reached a Spring-like 80 degrees. No record temperatures were set during the month. The coldest temperature occurred on the morning on March 20, when we reached a record low of 24 degrees as winter departed and spring began.

March also continued the trend of being a very windy month, as there were ten days when we had wind speeds of 30 mph or greater. The strongest wind occurred on March 15 with a wind of 41 mph.

What looms ahead for us, weather-wise, in May? We can expect milder temperatures, starting in the mid to upper 60's, and warming up to the mid 70's by months end. We can also expect occasional showers, usually occurring on about 10 days during the month, bringing an average of 3.15 inches of rain. The wettest May on record occurred in 1972, with a drenching 7.81 inches of rain. The driest was in 1965, with only a scant .27 inch. Springtime also brings an increase in thunderstorm potential, so be prepared to exercise caution when lightning, thunderstorms and hazardous weather events materialize.

Easter Egg Hunt

When: April 8
Where: The Pavilion
Time: 11 a.m. to 1 p.m.
Who: Ages 0-11
Hot dogs, chips, sodas available at no charge.

Please bring your own baskets to collect the eggs.

Deadline for sign-up is Thursday, April 6. To sign up, contact Carolyn Tuner, x1720, with number of children, names, ages, and number of adults.

American Red Cross Blood Drive

Wednesday, April 12
Building F-3 (Rocket Club)
9 a.m. to 2 p.m.

For more information, contact the Health Unit x1266.

Adopt a Cockatiel

Hand raised cockatiels, 4 months old, to be adopted to new homes.1 grey, 1 light grey and 1 yellow. Sex unknown. Adoption fees are $45.00 each. Call Alison or Terry Tinker at (410) 632-2755

April Events at the NASA Visitor Center

Saturday, April 8: "3-2-1 Blastoff"

This 30-minute program will take visitors through a sounding rocket launch from beginning to end. Visitors will learn what sounding rockets are, why there are used, and how they work. Following the program, children can make their own decorative paper rocket. Program begins at 1 p.m.

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Saturday, April 15: Earth Day at the Chincoteague National Wildlife Refuge

NASA Visitor Center staff will help celebrate Earth Day at the Chincoteague National Wildlife Refuge. Call the U.S. Fish and Wildlife Service at (757) 336-6122 for more information.

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Saturday, April 22: Earth Day at the Visitor Center

Join us for Earth Day 2006. This event will be celebrated with special activities throughout the day for children young and old.

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Saturday, April 29: "Kite Flight" children's program

Learn all about kites and how they fly! Following the presentation, children will build and fly their own sled kite (materials are provided). The program will begin at 1 p.m.

Call the Visitor Center at x2298 for more information.

Inside Wallops is an official publication of Goddard Space Flight Center and is published by the Wallops Office of Public Affairs, Extension 1584, in the interest of Wallops employees. Recent and past issues of *Inside Wallops* also may be found on the NASA Wallops Flight Facility homepage: www.wff.nasa.gov
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